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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,972	03/22/2004	Bart De Cock	920522-95773	1363
23644	7590	06/30/2005	EXAMINER	
BARNES & THORNBURG			TANG, MINH NHUT	
P.O. BOX 2786			ART UNIT	
CHICAGO, IL 60690-2786			PAPER NUMBER	
			2829	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/805,972

Applicant(s)

COCK ET AL.

Examiner

Minh N. Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Europe on March 21, 2003. It is noted, however, that applicant has not filed a certified copy of the 03447058.3 application as required by 35 U.S.C. 119(b).
2. Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in Europe on March 21, 2003. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means", "comprise", and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the form and legal phraseology often used in patent claims (i.e., comprise, comprising) should be avoided. Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities:

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a/ on page 8, line 32, a period (.) should be placed at the end of the sentence.

b/ on page 16, line 15, a period (.) should be placed at the end of the sentence.

Appropriate correction is required.

6. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

7. Claims 1-3, 10, 12, 14-15, 17 and 20 are objected to because of the following informalities:

a/ in claims 1-3, 10, 12, 14-15, and 20, "energisable", "non-energised", and "energising" should be -- energizable --, -- non-energized --, and -- energizing --, respectively.

b/ in claim 17, line 1, "means for sensing" should be -- the means for sensing --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 2 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2 and 14, it is not clear what is meant by "the first respectively second motor stator winding", and "the second respectively first motor stator winding".

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Furthermore, there is an insufficient antecedent basis for the limitation "the voltage" recited in claim 14, line 2.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Fincher (U.S.P. 4,851,755).

As to claims 1, 7 and 12, Fincher discloses, in Fig. 3, an apparatus and method for detecting rotation of a rotor (12) of a multiple phase motor (10) with bipolar drive, the motor (10) comprising at least a first and a second energizable motor stator winding (14a, 14b), the apparatus comprising means (32) for sequentially and alternately sensing a back electromagnetic force (voltage pulse induced in a deenergized stator winding due to back EMF) on the first and the second motor stator winding (14a, 14b) at or near the end of a period of a non-energized (i.e., deenergized stator winding) state thereof.

As to claims 2 and 14, as best understood, Fincher discloses in Fig. 3, the means (32) for sequentially and alternately sensing has means (52) for sensing a voltage (i.e., induced voltage pulses) on "the first respectively second motor stator winding" (i.e., the deenergized stator winding) during energizing of "the second respectively first motor stator winding" (i.e., energized stator winding).

As to claims 3 and 15, Fincher discloses in Fig. 3, the means for sequentially and alternately sensing has a fixed or adjustable relative position in a non-energized state time-window (see column 6, lines 35-38).

As to claims 4 and 16, Fincher discloses in Fig. 3, means (56) for storing sensed voltage values (a predetermined number of consecutive pulses).

As to claims 5 and 17, Fincher discloses in Fig. 3, the means (32) for sensing has means (52) for sensing multiple voltage samples (61-64), further comprising means (56) for storing the multiple samples (61-64).

As to claim 6, Fincher discloses in Fig. 3, the motor (10) is driven in microstepping operation.

As to claims 8 and 18, Fincher discloses in Fig. 3, means (54) for outputting a detection signal (65) indicative of a stalled condition of the motor (10).

As to claims 9 and 19, Fincher discloses in Fig. 3, means (54) for outputting a detection signal (65) indicative of a rotation of the motor rotor (12) or derivatives thereof versus time.

As to claims 10 and 20, Fincher discloses in Fig. 3, means (50) for sensing a unipolar signal across one non-energized motor stator winding (deenergized stator winding) by connecting one terminal of the motor stator winding (14a, 14b) to a fixed or reference potential while measuring the voltage at an other terminal of that non-energized motor stator winding (deenergized stator winding).

As to claims 11 and 13, Fincher discloses in Fig. 3, excluding a three-phase motor with bipolar drive with star connected coils.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Raider et al. 4,422,040 Method Of Testing Stepping Motors.

Erdman 5,376,866 Motor Controls, Refrigeration System And
Methods Of Motor Operation And Control.

King et al. 6,586,898 Systems And Methods Of Electric Motor
Control.

Communication

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh N. Tang whose telephone number is (571) 272-1971. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor R. Ramirez can be reached on (571) 272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MINH NHUT TANG
PRIMARY EXAMINER
6/23/05